ANALYSIS OF APPLICATION OF THE ALTMAN Z-SCORE BANKRUPTION PREDICTION MODEL IN RETAIL COMPANIES IN INDONESIA STOCK EXCHANGE

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Abstract - *The purpose of this study is to analyze the company's financial statements and predict the bankruptcy of retail companies listed on the Indonesia Stock Exchange during the 2016-2019 period using the Altman Z-Score method.*

The data collection from literature study, data collection techniques by conducting a review study of company financial records and reports obtained from the website www.idx.co.id, while the share price of each company is obtained from the website finance.yahoo.com .

The results of this study indicate that the potential bankruptcy prediction of 23 retail companies that have gone public on the Indonesia Stock Exchange. The results of financial statements analysis from 2016-2019 of 23 retail companies found 6 (six) companies in the healthy category, 1 (one) company in the Gray Zone category, 5 (five) companies in the potentially bankrupt category and 11 companies in the unstable category.

Keywords**:** *Bankruptcy Analysis, Altman Model (Z-Score)*

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I. PRELIMINARY

A retail company is one of the activities that adds value to products and services to consumers, either for family needs or for personal needs. Companyretailassist producers / distributors and consumers so that every need for both can be met. Retail companies provide all household needs, from daily necessities such as sugar, soap, clothes, to other necessities.

Technological advances provide opportunities for manufacturers to quickly offer new, more practical products. The development of online shopping or online shops via the internet has mushroomed in Indonesia, and is even well known by the Indonesian people. The many different conveniences of shopping and the various types of products and services offered have made Indonesians make online shopping a new shopping place besides shopping centers.
Internet media has become one of the means of product promotion that has very good prospects today, where through internet media sellers can reach consumers widely. The development of online shops in Indonesia has made business competition between shopping centers or offline stores and online e-commerce stores in Indonesia very tight.

The decline in the retail business began to appear when PT Hero Supermarket Tbk closed 74 outlets in 2015 to reduce the company's operating expenses, including closing 39 Starmart outlets, 22 Guardian outlets, 10 Hero outlets and 3 Giant outlets. Then after completing the divestment in the Starmart convenience store business, in December 2016, 84 stores were transferred or closed. And in 2017, PT Ramayana Lestari Sentosa Tbk closed 8 supermarkets due to losses. According to the report, PT Ramayana Lestasi Sentosa Tbk received sales revenue which only increased by 9.79 percent, but third party debt and tax debt weighed heavily on the company's liabilities.

Parties with an interest in a company really need to know the financial condition of a company. Financial statement analysis is used to evaluate the company's current and past financial position and results of operations to predict the future. One of the analytical tools used to determine the company's financial condition is ratio analysis. Bankruptcy can be estimated by looking at the financial ratios of the financial statements issued by companies.

Often companies that have been operating for a certain period of time are forced to dissolve themselves due to business failure (bankruptcy). To be able to identify the early signs of bankruptcy, the company needs to carry out an analysis of its financial condition. The earlier these signs are known, the better it is for management to be able to take strategies to improve their financial condition immediately.

According to Hanafi (2014: 638), a company can be said to be bankrupt if the company experiences minor difficulties such as liquidity problems, and to more serious difficulties, namely not solvable (debt is greater than assets). Article 1 point 1 of Law No.37 of 2004 concerning Bankruptcy and Postponement of Debt Payment, states that Bankruptcy is a general confiscation of all assets of a bankrupt debtor whose management and settlement is carried out by a curator under the supervision of the supervisory judge.

The Z-Score model is a bankruptcy prediction model invented by Edward I. Altman in 1968. The Z-Score model uses the Multiple Discriminant Analysis method with five types of financial ratios, namely working capital to total assets, retained Earnings to total assets, Earnings before interest and taxes total assets, book value of equity to book value of liabilities, and sales to total assets. The researcher chose to use the Altman analysis method (Z-Score method), because the Z-

Score method is easy to use and is able to obtain a prediction accuracy level of up to 95% (Tambunan et al., 2015). According to AA Chairunisa (2017), the calculation of the accuracy level of the Altman Z-Score method has an accuracy rate of 96%.

II. THEORETICAL BASIS

2.1 *Financial Distress*

Financial distress is a condition of a company whose operating cash flows are not able to pay current liabilities. So that makes the company obliged to make improvements because it has reached the worst liquidity. So that it cannot be completed without a change in the company's structure or a change in the size of the company's operations (Hapsari, 2012). Financial distress describes a company experiencing difficulties in its liquidity, resulting in the company being unable to fulfill short-term obligations that the company must pay off (DS Saleh, 2018). Financial distress also describes the condition of a decline in profitability that results in the inability of the company to pay off its obligations (Simanjuntak, Titik and Aminah, 2017). Financial distress can occur when a company is unable to face ongoing market competition, which has an impact on the company's inability to manage its financial performance (DS Saleh, 2018). If

Financial distress causes the company to neglect contracts and will result in financial restructuring between the company, its creditors and the rights of shareholders (Rodoni and Ali, 2010: 171). Two conditions that will be experienced by a company in facing financial distress, namely the company cannot fulfill the schedule of the agreement that has been made, so that the company is declared to have failed to pay debts to creditors that are due and results in the company's condition in a state of insolvency (Anggarini, 2010). Financial distress is also defined as obligations to creditors that are violated by the company due to financial difficulties. Violation of these obligations arises from the company's operational inefficiency (Senbet, LW, and Wang, 2012).

*Financial distress*begins with short-term liquidity difficulties, which is the lightest initial indication for a company, and if the company declares bankruptcy, this indicates the company is experiencing very heavy financial distress (Triwahyuningtias, 2012). Financial distress needs to be watched out for and anticipated if the condition of the company's operational activities has begun to be disrupted (Mayang Murni, 2018). Financial distress not only has an impact on poor financial conditions, but also results in other impacts such as poor company performance appraisals, decreased employee wages / salaries, suppliers refuse to provide credit and creditors do not provide loans (Ratna and Marwati, 2018). Financial distress is a condition that is not expected by various parties. Because it will have an impact on negative reactions of investors and creditors who will be careful in investing or providing loans to companies experiencing financial distress. When the trust of investors and creditors decreases, management must be careful in acting to overcome this condition (Mayang Murni, 2018).

When a company experiences financial distress, the company will think of the best way to minimize the possibility of bankruptcy, in addition to dealing with it ourselves, such as increasing sales, closing outlets, and reducing employees. Companies also usually reorganize, namely the actions to be taken if the intrinsic or economic value of the entity is greater than the current liquidity value. So that the company will try to realize and carry out the reorganization. Reorganization theory in companies facing financial distress is basically designed to continue to defend the company in the face of financial distress. This reorganization is an effort to improve the existence of the company so that it is seen that the continuity of its business is worth more than its asset value. However, because the reorganization process requires a long process, there will be an explicit consideration of the existing cash flow procedures. The responsibility of this process is to ease the burden on debtors'

liabilities and restructure assets, so that the company's capital restructuring does not occur again in the future (Altman & Hotchkiss, 2011).

If financial distress is known early, it is hoped that action will be taken to immediately improve the situation so that bankruptcy can be avoided (D. Setiawan et al., 2017). According to Almialia and Kristijadi (2003) in (Hanifah & Purwanto, 2013) states that there are parties who make financial distress the center of attention. These parties include:

1. Lenders

   Lenders will pay more attention to determining decisions in lending. So that the prediction of financial distress has relevance to the lender.
2. Investors

   Investors need information regarding the provision of funds that they will provide to a company. So that the prediction of financial distress will help assess the merits of a company. This is used to minimize the possibility of principal and interest repayment problems. Because before an investor makes a decision to invest, he will look at the reputation and prospects of the company. This is done in order to avoid the possibility of not receiving dividends from the company in the long term. It is also used to see the level of health the company has in predicting the potential for company bankruptcy. So it is necessary to pay attention to financial distress so that investors have more confidence when providing investment capital to certain companies.
3. Regulators

   As a policy-making regulatory agency that has the responsibility of overseeing the stability of company debt payments. So the prediction of financial distress is very helpful in determining existing policies, this is to minimize the problem of default on companies that are indicated by financial distress.
4. Government

   As a regional antitrust, the government needs to predict financial distress aimed at preventing the abuse of market power that can be done by large companies to monopolize the market. For example, the actions of mergers and acquisitions that must be reviewed by the government, so that companies with no indication of financial distress do not take these actions. Because if large companies carry out mergers and acquisitions to increase the company's wealth only, then startup companies will be less able to face the existing competition. So the government must tighten its supervision of the actions of mergers and acquisitions by considering the financial distress of a company.
5. Auditor

   Predictions of financial distress are used by auditors as a tool to determine future going concern assessments. Going concern is the assumption that a company is able to operate long term. So that in making decisions, going concert is the main source of auditors as determinants of the company in making decisions.
6. Management

   For management, prediction of financial distress is needed to estimate the cost of financial distress. If the company experiences financial distress and even bankruptcy, the company will bear direct costs and indirect costs. To minimize the occurrence of bankruptcy, if the company is in a financial distress position, the management will think of ways such as take-over or merger to reduce the occurrence of bankruptcy which is very detrimental.

So in general financial distress indicates the starting point of a company that must be careful in making a good and appropriate strategy, so that companies experiencing financial difficulties do not result in financial failure and even bankruptcy. If the company is able to face financial distress, it will get added value in the eyes of investors.

Financial distress can be distinguished based on the problems that occur in a company, namely as follows:

1. *Failure* (Economic failure) occurs when the rate of return on invested capital is lower than the prevailing interest rate on similar investments (Altman & Hotchkiss, 2011).
2. *Insolvency*is a financial failure that occurs when the company is unable to pay its short-term debt, thus illustrating a negative company performance. Generally, insolvency is divided into two forms on the basis of cash flow, namely technical insolvency and bankruptcy insolvency. Technical insolvency can occur when a company is unable to meet its current obligations, which indicates a company is not able to manage its liquidity. As for insolvency in bankruptcy, it usually indicates a temporary chronic condition of a company. So that a company is in this situation when its total liabilities exceed the market value of its total assets which results in negative equity (Altman & Hotchkiss, 2011).
3. *Default*is a technical and legal business failure involving the relationship between debtors and creditors. Technical standards will occur when a debtor violates the terms of the loan agreement with a creditor, thus becoming the basis for legal action. The legal default can occur if the debtor fails to meet the interest and principal obligations of the loan. In this condition the company can continue to operate, but the possibility of discontinuation of operations is very strong to avoid temporary bankruptcy (Altman & Hotchkiss, 2011).
4. *Bankruptcy*that is, legal bankruptcy occurs when a company experiences financial difficulties. Then the company made an official statement that it was formally bankrupt and legalized in the district court (Altman & Hotchkiss, 2011).

2.2 The Altman Z-Score Bankruptcy Model

Z-Score is a tool for predicting financial distress by combining a number of financial reports and a measure of market value. Continuing the evolutionary history of credit scoring outside the univariate system, we now move to the first multivariate study to attack the subject of bankruptcy prediction Z-Score Model. This model makes use of one of the first discriminant analyzes applied to socioeconomic-financial science (Altman, 1968) and later Deakin (1972), combines traditional financial reporting variables with new and more powerful statistical techniques and is aided by early editions of the main framework computer built models. The original 1968 Z-Score. It consists of five financial indicators, four of which require only one year of financial reporting and one requires the original model equity market value. The original sample of firms used only manufacturing firms, which filed for bankruptcy reorganization under the old system.

Table 2. 1 Definition and weighting of the original Z-score (1968)

Variable	Definition	Original Z-Score Weighting
X1 ……	$\frac{Working\ Capital}{Total\ Assets}$	1.2
X2 ……	$\frac{Retained\ Earnings}{Total\ Assets}$	1.4
X3 ……	$\frac{EBIT}{Total\ Assets}$	3.3

X4 ……	$\frac{Market\ Value\ of\ Equity}{Book\ Value\ of\ Total\ Liabilities}$	0.6
X5 ……	$\frac{Sales}{Total\ Assets}$	1.0

Source: Corporate Financial Distress, Restructuring and Bankruptcy (Fourth Edition, 2019: Chapter 10, Pg.194)

With the following assessment criteria:

1. If the Z-Score> 2.99, the company is in the safe zone, including in the healthy category, namely no financial distress.
2. If the Z-Score value is 1.81> Z <2.99, then the company is included in the gray zone category (it cannot be determined whether the company went bankrupt or not).
3. If the Z-Score value <1.81, the company is in a distress zone, including in the financial distress category.

In Altman (1983) model, the difference from the original Z-Score model is the substitution of equity book value for market value, the difference from the zone (Safe, Gray Zone and Financial Distress). Models for firms in non-US countries generally follow the pattern of first trying the original model on a sample of local bankrupt and non-bankrupt firms and then adding or subtracting variables thought to be helpful in those countries for more accurate predictions. In some cases, different criteria for a sample of distressed firms should be used because of the lack of formal bankruptcy. An example is the Chinese model (Altman, Zhang and Yen 2010) which uses companies classified as ST (Special Treatment) because of consistent losses and a decrease in book equity below market value. At another place, as in Australia (Altman and Izan 1982), the explanatory variables are all adjusted for industry averages so that the model is considered to be more appropriate and accurate across various industry sectors. In terms of the ruler of the risk assessment model (Altman and Rijken 2011), in addition to traditional financial ratios and market value levels and volatility measures, the authors add macroeconomic variables, such as yield spreads and inflation indicators, in the Z-Metric Model applied to all listed companies. non-financial to assess the health of private sector sovereigns This modeling approach applies to any country in the world as long as data on private sector companies that are listed or not listed are available. The formula for the revised Altman Z-Score model (1983) for non-public invoice companies. the explanatory variables are all adjusted for industry averages so that the model is considered to be more appropriate and accurate across different industrial sectors. In terms of the ruler of the risk assessment model (Altman and Rijken 2011), in addition to traditional financial ratios and market value levels and volatility measures, the authors add macroeconomic variables, such as yield spreads and inflation indicators, in the Z-Metric Model applied to all listed companies. non-financial to assess the health of private sector sovereigns This modeling approach applies to any country in the world as long as data on private sector companies that are listed or not listed are available. The formula for the revised Altman Z-Score model (1983) for non-public invoice companies. the explanatory variables are all adjusted for industry averages so that the model is considered to be more appropriate and accurate across different industrial sectors. In terms of the ruler of the risk assessment model (Altman and Rijken 2011), in addition to traditional financial ratios and market value levels and volatility measures, the authors add macroeconomic variables, such as yield spreads and inflation indicators, in the Z-Metric Model applied to all listed companies. non-financial to assess the health of private sector sovereigns This modeling approach applies to any country in the world as long as data on private sector companies that are listed or not listed are available. The formula for the revised Altman Z-Score model (1983) for non-public invoice companies.

Z "= 0.717X1 + 0.847X2 + 3.107X3 + 0.420X4 + 0.998X5 ..... (1)

$$X1 = \frac{Current\ Assets - Current\ Liabilities}{Total\ Assets}$$

$$X2 = \frac{Retained\ Earnings}{Total\ Assets}$$

$$X3 = \frac{Earnings\ Before\ Interest\ and\ Taxes}{Total\ Assets}$$

$$X4 = \frac{Book\ Value\ Equity}{Total\ Liabilities}$$

$$X5 = \frac{Sales}{Total\ Assets}$$

Source: Corporate Financial Distress, Restructuring and Bankruptcy (Fourth Edition, 2019: Chapter 10, Pg.205)

The Z-Score model for all industries, manufactures and non-producers in 1995 and was applied first to Mexican companies and then to other Latin American companies. It has since been implemented successfully in the United States and in nearly all other countries, usually with superior accuracy compared to the original Z-Score model when data is non-producer included. This substitution is particularly important in an environment where the stock market is not considered a good valuation because of size, scope, liquidity, or trading factors. Additionally, note that the original fifth variable, sales / total assets, is no longer in this model. Altman found that the variable X5 is very sensitive to industry sector differences, eg retail or service firms versus manufacturing firms and in countries where there is little capital to invest in fixed assets. The last Altman model (1995) used for Discriminant Analysis also has a constant value of (3.25). A Z-Score result slightly above or below zero will get a D rating based on the Bond Rating Equivalents (BRE) rating.

According to Altman and Hotchkiss (1995) the Z-Score calculation uses the following formula:

Z =*Bankruptcy Index*

Z = 3.25 + 6.56 X1 + 3.26 X2 + 6.72 X3 + 1.05 X4 .....(2)

X1 = Working Capital to Total Assets

$$= \frac{Current\ Assets - Current\ Liabilities}{Total\ Assets}$$

X2 = Retained Earnings to Total Assets

$$= \frac{Retained\ Earnings}{Total\ Assets}$$

X3 = Earnings Before Interest and Tax to Total Assets

$$= \frac{Earnings\ Before\ Interest\ and\ Taxes}{Total\ Assets}$$

X4 =*Book Value of Equity to Book Value of liabilities*

$$= \frac{Book\ Value\ Equity}{Total\ Liabilities}$$

Source: Authors' calculations from Altman, Hartzell and Peck (1995)
Corporate Financial Distress, Restructuring and Bankruptcy (Fourth Edition, 2019: Chapter 10, Pg.206)

This Z-Score model uses five financial ratios, namely:

1. *Working Capital to Total Assets* (X1)

   *Working capital to total assets*is the ratio used to measure the company's net current assets to total capitalization. The purpose of this ratio is to provide information about liquidity, because this ratio indicates the percentage of total assets used as net working capital. So that the higher the ratio, the greater the liquidity of the company. Working capital defined is the difference between current assets and current liabilities.

2. *Retained Earnings to Total Assets* (X2)

   *Retained Earnings (RE)*is the total amount of income reinvested or loss of an enterprise during its life. This account is also referred to as the implicit surplus received by the company which is considered in this ratio. In addition, the RE / TA ratio is used to measure the company's leverage. Companies with high RE relative to TA, have financed their assets through profit retention and have not made the most of debt. This ratio also shows the use of internally generated funds for growth (low risk capital) or OPM (other people's money) which has higher risk capital.

3. *Earnings Before Interest and Tax to Total Assets* (X3)
   *Earnings Before Interest and Tax to Total Assets*is a measure of the productivity of a firm's assets, independent of tax or interest rate factors. Because the existence of a company is based on the strength of its assets in generating profit, this ratio is closely related to credit risk.
4. *Book Value of Equity to Book Value of liabilities* (X4)
   Book Value of Equity to Book Value of liabilities is the market value of equity measured by the combined market value of all shares, namely the value of ordinary shares and the value of preferred shares. Meanwhile, the obligations include current and long-term liabilities. This measure shows how much the company's assets can decrease in value (measured by the market value of equity plus liabilities) before the liabilities owned exceed the assets and the company goes bankrupt. This ratio adds a dimension to market value that most other failure studies do not consider. This ratio illustrates how far the market value of equity will decline, before the company's liabilities exceed assets so that the company is in the zone*insolvency*.

Table 2. 2 *Z-Score and Bond Rating Equivalents (BRE)*

Z = 3.25 + 6.56 X1 + 3.26 X2 + 6.72 X3 + 1.05 X4				
Rating	Median 1996 Z-Score	Median 2006 Z-Score	Median 2013 Z-Score	Zone
AAA / AA +	8.15	7.51	8.80	*Safe Zone*
AA / AA-	7,16	7.78	8.40	

A +	6.85	7.76	8.22	
A	6.65	7.53	6.94	
A-	6.40	7,10	6.12	
BBB +	6.25	6.47	5.80	
BBB	5.85	6.41	5.75	
BBB-	5.65	6.36	5.70	
BB +	5.25	6.25	5.65	
BB	4.95	6.17	5,52	*Gray Zone*
BB-	4.75	5.65	5.07	
B +	4.50	5.05	4.81	
B	4.15	4.29	4.03	
B-	3.75	3.68	3.74	
CCC +	3.20	2.98	2.84	
CCC	2.50	2.20	2.57	*Distress Zone*
CCC-	175	1.62	1.72	
CC / D	0	0.84	0.05	

[a.] *Sample size in parentheses*
[b] Interpolated between CCC and CC / D
[c]*Based on 94 Chapter 11 Bankruptcy filings, 2010-2013*
Corporate Financial Distress, Restructuring and Bankrupty (Fourth Edition, 2019: Chapter 10, Pg. 194)

III. RESEARCH METHODS

The research strategy is a guideline used in the form of treatment in a study with the aim of realizing each process in this study. Research design (*research design*) is a plan for data collection, measurement, and analysis, based on research questions from the study (Sekaran and Bougie, 2017: 109). The research strategy is important in determining the method to be realized in order to obtain accurate research results.

3.1 Types of research

This type of research applied in this research is descriptive research, with a quantitative approach. The type of data used for this research is secondary data. The data source is obtained from the Indonesia Stock Exchange (IDX), from the official websitewww.idx.co.id and www.finance.yahoo.com The reason for choosing this data source is because it is easy to reach the location and visit the Indonesia Stock Exchange web address.

3.2 Population

In this study the population used is a company engaged in the service sector on the Indonesia Stock Exchange (BEI). In this study, the population of service sector companies focused on the retail

company sub-sector (retail trade) on the Indonesia Stock Exchange (BEI), which amounted to 27 companies in 2016-2019.

3.3 Sample

This sample is taken based on the criteria determined to represent the population in the study. For this reason, the sample taken from the population must be truly representative (Sugiyono, 2017). The sample is data selected from the results of population reduction in this study, namely from the total population of 27 retail sector companies that are on the Indonesia Stock Exchange (IDX).

The sampling technique in this study using purposive sampling technique. The criteria for sampling in this study are as follows:

1. A retail company listed on the Indonesia Stock Exchange
2. Retail companies that publish financial reports for the 2016-2019 period
3. Companies that have complete financial reports, especially items that are research variables

Table 3. 1 List of population and sample companies using the technique *purposive sampling*

No.	Code	Company name	Criteria			Sample
			1	2	3	
1.	ACES	PT Ace Hardware Indonesia Tbk	✓	✓	✓	✓
2.	AMRT	PT Sumber Alfaria Trijaya Tbk	✓	✓	✓	✓
3.	CENT	PT Centratama Telekomunikasi Indonesia Tbk	✓	×	✓	×
4.	CSAP	PT Catur Sentosa Adiprana Tbk	✓	✓	✓	✓
5.	POWER	PT Duta Intidaya Tbk	✓	✓	✓	✓
6.	ECII	PT Electronic City Indonesia Tbk	✓	✓	✓	✓
7.	DIVA	PT Distribution Voucher Nusantara Tbk	✓	×	✓	×
8.	ERAA	PT Erajaya Swasembada Tbk	✓	✓	✓	✓
9.	GLOB	PT Global Teleshop Tbk	✓	✓	✓	✓
10.	HERO	PT Hero Supermarket Tbk	✓	✓	✓	✓
11.	STALL	PT Kioson Commercial Indonesia Tbk	✓	✓	✓	✓
12.	COIN	PT Kokoh Inti Arebama Tbk	✓	✓	✓	✓
13.	LPPF	PT Matahari Department Store Tbk	✓	✓	✓	✓
14.	MAPI	PT Mitra Adiperkasa Tbk	✓	✓	✓	✓
15.	MIDI	PT Midi Utama Indonesia Tbk	✓	✓	✓	✓

16.	MAPA	PT MAP Active Adiperkasa Tbk	✓	×	✓	×
17.	MKNT	PT Mitra Communications Nusantara Tbk	✓	✓	✓	✓
18.	MPPA	PT Matahari Putra Prima Tbk	✓	✓	✓	✓
19.	RALS	PT Ramayana Lestari Sentosa Tbk	✓	✓	✓	✓
20.	RANC	PT Supra Boga Lestari Tbk	✓	✓	✓	✓
21.	RIMO	PT Rimo Catur Lestari Tbk	✓	✓	✓	✓
22.	SKYB	PT Skybee Tbk	✓	✓	✓	✓
23.	NFCX	PT NFC Indonesia Tbk	✓	×	✓	×
24.	SONA	PT Sona Topas Tourism Industry Tbk	✓	✓	✓	✓
25.	TELE	PT Tiphone Mobile Indonesia Tbk	✓	✓	✓	✓
26.	TRIO	PT Trikomsel Oke Tbk	✓	✓	✓	✓
27.	MCAS	PT M Cash Integration Tbk	✓	✓	✓	✓

Source: stokok.com 2018

3.4 Data and Data Collection Methods

Secondary data is data that is obtained in a ready-made form, which has been collected and processed by other parties, usually in the form of publication (Suryani and Hendryadi, 2016: 171). The unit of analysis for this research is retail sector companies listed on the Indonesia Stock Exchange covering the period 2016-2019.

The data collection method used is in the form of literature study, namely data collection techniques by conducting a research study of company financial records and reports.

3.5 Data analysis method

Descriptive analysis to determine the condition of the variables and research using the Altman Z-score method. In descriptive analysis the writer uses tables to clarify the discussion on this scientific research.

IV. RESULTS AND DISCUSSION

Below is the result of the calculated Z-Score at the company retail in 2016 - 2019:

Table 4.1 Result table and Z-score analysis

No.	Company Code	Information	Year			
			2016	2017	2018	2019
1.	ACES	Z-Score Value	9.93	9.80	9.92	10.04
		Classification	Healthy	Healthy	Healthy	Healthy
		Rating	AAA / AA +	AAA / AA +	AAA / AA +	AAA / AA +

2.	AMRT	Z-Score Value	3.23	2.98	4.12	4.27
		Classification	Bankrupt	Bankrupt	*Gray Zone*	*Gray Zone*
		Rating	CCC +	CCC +	B	B
3.	CSAP	Z-Score Value	4.47	4.11	4.34	3.95
		Classification	*Gray Zone*	*Gray Zone*	*Gray Zone*	Bankrupt
		Rating	B	B	B	B-
4.	POWER	Z-Score Value	4.03	4.74	4.11	2.64
		Classification	*Gray Zone*	*Gray Zone*	*Gray Zone*	Bankrupt
		Rating	B	B	B	CCC
5.	ECII	Z-Score Value	7,18	7.39	7.25	7.07
		Classification	Healthy	Healthy	Healthy	Healthy
		Rating	A	A	A	A
6.	ERAA	Z-Score Value	5.17	5.28	5,12	5.19
		Classification	*Gray Zone*	*Gray Zone*	*Gray Zone*	*Gray Zone*
		Rating	BB-	BB-	BB-	BB-
7.	GLOB	Z-Score Value	-31.65	-21.38	-43.60	-3.73
		Classification	Bankrupt	Bankrupt	Bankrupt	Bankrupt
		Rating	CC / D	CC / D	CC / D	CC / D
8.	HERO	Z-Score Value	4.61	4.06	2.84	4.85
		Classification	*Gray Zone*	*Gray Zone*	Bankrupt	*Gray Zone*
		Rating	B	B	CCC +	B +
9.	STALL	Z-Score Value	-0.65	5.13	5.64	5.84
		Classification	Bankrupt	*Gray Zone*	*Gray Zone*	Healthy
		Rating	CC / D	BB-	BB	BBB +
10.	COIN	Z-Score Value	4.60	4.56	4.21	3.91
		Classification	*Gray Zone*	*Gray Zone*	*Gray Zone*	Bankrupt
		Rating	B	B	B	B-
11.	LPPF	Z-Score Value	9,52	8.64	7.53	7.75
		Classification	Healthy	Healthy	Healthy	Healthy

		Rating	AAA / AA +	AA / AA-	A	A
12.	MAPI	Z-Score Value	4.21	4.72	5.09	5,52
		Classification	*Gray Zone*	*Gray Zone*	Healthy	Healthy
		Rating	B	B	BB-	BB
13.	MIDI	Z-Score Value	3.03	2.51	2.62	2.79
		Classification	Bankrupt	Bankrupt	Bankrupt	Bankrupt
		Rating	CCC +	CCC-	CCC	CCC
14.	MKNT	Z-Score Value	8.68	5.69	5,50	9.08
		Classification	Healthy	*Gray Zone*	*Gray Zone*	Healthy
		Rating	AA / AA-	BB +	BB-	AAA / AA +
15.	MPPA	Z-Score Value	3.56	1.08	0.96	1.25
		Classification	Bankrupt	Bankrupt	Bankrupt	Bankrupt
		Rating	CCC +	CC / D	CC / D	CC / D
16.	RALS	Z-Score Value	6.93	6.82	7.78	8,04
		Classification	Healthy	Healthy	Healthy	Healthy
		Rating	A-	A-	A	A
17.	RANC	Z-Score Value	5,50	5.75	6.18	6.40
		Classification	*Gray Zone*	Healthy	Healthy	Healthy
		Rating	BB-	BBB	A-	A-
18.	RIMO	Z-Score Value	-1.06	3.34	2.86	3.18
		Classification	Bankrupt	Bankrupt	Bankrupt	Bankrupt
		Rating	CC / D	CCC +	CCC +	CCC +
19.	SKYB	Z-Score Value	14.32	2.57	2.79	3.42
		Classification	Healthy	Bankrupt	Bankrupt	Bankrupt
		Rating	AAA / AA +	CCC	CCC	CCC +
20.	SONA	Z-Score Value	6.84	6.44	7.63	7.72
		Classification	Healthy	Healthy	Healthy	Healthy
		Rating	A-	A-	A	A

21.	TELE	Z-Score Value	8.96	6.38	8.74	8.59
		Classification	Healthy	Healthy	Healthy	Healthy
		Rating	AAA / AA+	A-	AA / AA-	AA / AA-
22.	TRIO	Z-Score Value	-61.10	-19.15	-120.47	-23.95
		Classification	Bankrupt	Bankrupt	Bankrupt	Bankrupt
		Rating	CC / D	CC / D	CC / D	CC / D
23.	MCAS	Z-Score Value	7.90	4.35	8.78	9.08
		Classification	Healthy	*Gray Zone*	Healthy	Healthy
		Rating	A	B	AA / AA-	AAA / AA+

Source: Author processed

[a.] *Sample size in parentheses*
[b] Interpolated between CCC and CC / D
[c]*Based on 94 Chapter 11 Bankruptcy filings, 2010-2013*

This research is a research on the prediction of potential bankruptcy in retail companies. This study examines a sample of potential bankruptcy ratios in retail companies, where the ratio is obtained from calculations using the Altman Z-Score method for non-manufacturing companies.

If we look again at the WCTA ratio table (table 4.1), it can be seen that the company that has the largest WCTA ratio for 4 consecutive years is PT Tiphone Mobile Indonesia Tbk, while the company that has the lowest average WCTA ratio is PT Trikomsel Oke Tbk.

Companies that have had negative WCTA ratios such as PT Sumber Alfaria Trijaya Tbk in 2016 and 2017, PT Duta Intidaya Tbk in 2019, PT Global Teleshop Tbk in 2016, 2017, 2018 and 2019, PT Midi Utama Indonesia Tbk in 2016, 2017, 2018 and 2019, PT Matahari Putra Prima Tbk in 2017, 2018 and 2109, PT Rimo Catur Lestari Tbk in 2016, 2017, 2018 and 2109, PT Skybee Tbk in 2019 and PT Trikomsel Oke Tbk in 2016 , 2017, 2018 and 2019. It indicates that these companies have the lowest level of liquidity compared to other companies because the current assets of these companies cannot cover their current debt, this will definitely affect the company's financial ratios.

Based on the calculation results in the RETA ratio table, it can be seen that the level of the RETA ratio is low and has been and has negative ratios such as: PT Duta Intidaya Tbk in 2016 and 2017, PT Electronic City Indonesia Tbk in 2016 and 2017, PT Global Teleshop Tbk in in 2016, 2017, 2018 and 2019, PT Hero Supermarket Tbk in 2017 and 2018, PT Kioson Commercial Indonesia Tbk in 2016 and 2019, PT Kokoh Inti Arebama Tbk in 2016, 2017, 2018 and 2019, PT Mitra Communications Nusantara Tbk in 2018 and 2019, PT Matahari Putra Prima Tbk in 2017, 2018 and 2019, PT Rimo Catur Lestari Tbk in 2016, PT Skybee Tbk in 2017 and 2018 and PT Trikomsel Oke Tbk in 2016, 2017, 2018 and 2019 .This indicates that the company's ability to earn a profit on hold is lower and the negative RETA results will definitely affect the company's overall financial ratios.

Based on the calculation results in the EBITTA ratio table, it can be seen that a low level of EBITTA ratio has had a negative EBITTA ratio such as: PT Duta Intidaya Tbk in 2016 and 2017, PT Electronic City Indonesia Tbk in 2016 and 2017, PT Global Teleshop Tbk in in 2016 and 2019,

PT Kioson Commercial Indonesia Tbk in 2016 and 2019, PT Mitra Communications Nusantara Tbk in 2019, PT Matahari Putra Prima Tbk in 2016, 2017, 2018 and 2019, PT Rimo Catur Lestari Tbk in 2016, PT Skybee Tbk in 2017,2018 and 2019, and PT Trikomsel Oke Tbk in 2017, 2018 and 2019. Low EBITTA results indicate the company's ability to generate profits from assets is not good,companies that have negative EBITTA are caused by losses before taxes and interest experienced by the company.

Based on the results of calculations in the MVEBVL ratio table, it can be seen that the level of the MVEBVL ratio is caused by 2 things, namely the instability of the market value price per share of the company concerned and the increasing obligations the company has.

Table 4.2 The percentage of bankruptcy prediction classification uses the Altman Z-Score method for retail companies on the Indonesian Stock Exchange

Classification	Year							
	2016		2017		2018		2019	
	total	(%)	total	(%)	total	(%)	total	(%)
Healthy	9	40%	7	30%	9	40%	11	47%
Gray Zone	7	30%	9	40%	7	30%	3	13%
Distress Zone	7	30%	7	30%	7	30%	9	40%
total	23	100%	23	100%	23	100%	23	100%

Source: Author processed

Based on the Altman Z-Score trend for a sample of retail companies for the 2016-2019 period, for 2016 there were 9 companies with a percentage of 40%, in 2017 there were 7 companies with a percentage of 30%, in 2018 as many as 9 companies with a percentage of 40%, and in 2019 as many as 11 companies with a percentage of 47%.

In the gray zone conditions in 2016 there were 7 companies with a percentage of 30%, in 2017 there were 9 companies with a percentage of 40%, in 2018 there were 7 companies with a percentage of 30%, and in 2019 there were 3 companies with a percentage of 13%.

In the Distress Zone conditions in 2016 there were 7 companies with a percentage of 30%, in 2017 there were 7 companies with a percentage of 30%, in 2018 there were 7 companies with a percentage of 30% and in 2019 there were 9 companies with a percentage of 40%. It can be concluded that the percentage level of retail companies that are in the gray zone and distress zone conditions has decreased every year.

V. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

Based on the previous discussion and description, the authors draw the following conclusions:

1. All Altman Z-Score Method ratios are very important in determining the company's financial condition. The X1 ratio (Currents Assets-Currents Liabilities / Total Assets), which is working

capital influences the condition of the company's liquidity, because adequate company working capital will streamline the company's operational activities. If the ratio of X1 is negative, this means that the current assets cannot cover the debt. X2 (Retained Earnings / Total Assets) shows the company's ability to generate retained earnings from the company's total assets, where retained earnings are profits that are not distributed to shareholders. If the ratio of X2 is not good, then the reason is that the retained earnings balance is low, which shows that the ability of assets to earn profits is very low and if X2 is negative it indicates that during operation the company did not record retained earnings or instead received a deficit in retained earnings (retained loss). X3 (Earnings Before Interest and Taxes / Total Aseets) to measure the company's ability to generate profits from company assets before paying interest and taxes. X4 (Book Value Equity / Total Liabilities) reflects the company's capital structure, namely the extent to which each debt is supported by equity capital.

2. Based on the Altman Z-Score trend for a sample of retail companies for the 2016-2019 period, for 2016 there were 7 companies in the gray zone condition in 2016 with a percentage of 30%, in 2017 there were 9 companies with a percentage of 40%, in 2018 there were 7 companies with a percentage of 30%, and in 2019 as many as 3 companies with a percentage of 13%. In the Distress Zone conditions in 2016 there were 7 companies with a percentage of 30%, in 2017 there were 7 companies with a percentage of 30%, in 2018 there were 7 companies with a percentage of 30% and in 2019 there were 9 companies with a percentage of 40%. It can be concluded that the percentage level of retail companies that are in the gray zone and distress zone conditions has decreased every year.

5.2 Suggestion

Based on the research conducted, the author can provide several suggestions as follows:

1. For companies that are in a healthy condition, they should always maintain the company's financial performance well, because if they are not considered, the status of the company can move to vulnerable areas or even have the potential to go bankrupt which can occur in the future.
2. For companies that are in a distress zone condition, it is hoped that the company can improve their financial performance to avoid bankruptcy.
3. In general, so that companies avoid potential bankruptcy, it is recommended that companies pay attention to X1 (Currents Assets-Currents Liabilities / Total Assets), X2 (Retained Earnings / Total Assets), X3 (Earnings Before Interest and Taxes / Total Assets), X4 (Book Value Equity / Total Liabilities).

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